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Tips and Trends
Instructional Technologies Committee

Tablets

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By Patricia O. McPherson

Overview and Definition

Well before iPads were developed, academic librarians were working to integrate handheld PCs, personal digital assistants, and other portable devices into library services in order to facilitate access to resources, promote active learning, and enhance student engagement.

Since Apple's iPad was released in April 2010, additional manufacturers have entered the tablet market, production and ownership of the devices has surged, and more students are reporting using these portable tools for educational purposes. Many academic librarians are now focusing their efforts on leveraging tablet technology and available mobile apps to advance personalized learning and support discipline-specific information literacy instruction. However, with a wide array of devices to choose from and the number of apps available for these mobile tools topping the 1.5 million mark, decisions about how best to incorporate tablets into library instruction are becoming more complex.

In order to take advantage of these technological tools, librarians must enhance their digital literacy skills and foster communities of practice that include their library colleagues, students, faculty, and IT professionals. Such collaborations can help provide the logistical, technological, and pedagogical support needed to maximize the educational value of tablets.

Basis for Current Interest

Many of today's undergraduate students are using tablets. According to the 2014 EDUCAUSE Center for Analysis and Research Study of Undergraduate Students and Information Technology, about half of the students surveyed (47%) owned a tablet, up from 31% in 2013. Additionally, 62% of those tablet owners reported using that device in class. Those trends in undergraduate use of tablets were illustrated by a recent study at Sam Houston State University that looked at the use of emerging technologies among students at that institution. Ninety-three percent of students surveyed reported that they used their tablets for recreational purposes, but 86% also reported using their devices for educational purposes (Cassidy et al. 2014).

Even more of tomorrow's students are likely to be tablet users, according to current research. The Pearson Student Mobile Device Survey (2015) found that tablet usage is growing, particularly among younger adults. Seventy-eight percent of elementary school students reported that they regularly used tablets, compared with 66% the previous year. Sixty-nine percent of middle school students reported using tablets, up from 58% the previous year, and nearly half of the high school students (49%) indicated they used tablets, compared with 42% the previous year.

Current Applications in Academic Libraries and Higher Education

Following the release of the iPad, many of the articles about using tablets in higher education focused on using those devices for a number of specific aims: to promote active learning and enhance student engagement (Rossing et al. 2012); as a tool to replicate tasks, such as reading, note-taking, and annotating, previously accomplished using different devices (Mang and Wardley 2011); as a means of conducting formative assessment (Enriquez 2010; Kowalski et al. 2013); and to provide access to digital textbooks and e-books (Gawelek, Spataro, and Komarny 2011).

Articles in the professional literature of librarianship have looked at issues including: circulating tablets (Buzzard and Teetor 2011; Derr and Tolppanen 2015); providing "roving reference" or point-of-need reference instruction (Barnhart and Pierce 2011; Lotts and Graves 2011); using concept mapping (Graham 2011) and annotation (Holderied 2011) tools during information literacy instruction sessions; and surveying patron preferences and satisfaction (Jones and Sinclair 2011).

Library Technology Reports, a publication of ALA TechSource, has devoted several issues to the use of tablets in libraries. The shift in the focus of tablet technology coverage over time reflects the changes in the tablet industry and new challenges being faced by librarians using these tools. *Rethinking Reference and Instruction with Tablets* (Miller, Meier, and Moorefield-Lang 2012) highlights initiatives related to making iPads available for student use at the reference desk, creating a tablet user community of librarians, library staff and administrators, and implementing a roving reference service. *Selecting and Evaluating the Best Mobile Apps for Library Services* (Hennig 2014) calls for "app literacy" for librarians and discusses the process for evaluating mobile apps and integrating mobile apps into library programs. *Mobile Devices: Service with Intention* (Miller, Moorefield-Lang, and Meier 2015) includes five case studies about the potential use of tablets, smartphones, and other mobile devices and discusses barriers that might stand in the way of incorporating those devices into library services.

The changing emphasis on use of tablets in libraries reflects the growing complexity of incorporating mobile devices and applications into library instruction.

Applications in Academic Library Instruction

Active Learning

Like their colleagues in the higher education community, academic librarians have examined how the use of tablets could promote active learning. At Stonehill College's MacPhaidin Library, where the author works, a renovation project transformed an outdated library instruction classroom into the Flynn Collaboration and Discovery Space, a tech-rich classroom equipped with 30 HP ElitePad 100 tablets. To facilitate active learning, instruction librarians published a series of teaching templates providing outlines for instruction sessions ranging in length from 20 to 75 minutes. Each of these templates incorporate active learning strategies such as "think-pair-share."

Similar guidance is provided to faculty and librarians through The University of Arkansas Project Ferrari/Tablet project which features a LibGuide providing tips for using the library's iPad 32GB tablets for instruction. The LibGuide includes information on troubleshooting the tablets, a variety of scholarly articles related to teaching with iPads, and a number of sample exercises.

Research at the University of Arkansas suggests such active tablet-assisted instruction activities are succeeding. There, library instruction sessions were delivered via iPad in a SCALE-UP (Student Centered Active Learning Environment with Upside-down Pedagogies) classroom and researchers found that the iPad seemed to enhance student focus, lessen distractions, and support collaborative learning (Gibeault 2105).

Personalized Education Support

In addition to using tablets in active learning information literacy classes, instruction librarians have also focused on leveraging tablets as tools to help provide personalized educational support. The libraries at the Massachusetts Institute of Technology offered a workshop on "personal content management." Topics addressed included citation management, collaboration and sharing notes, as well as organizing and annotating files including PDFs, notes, and images. Apps used in the workshop included Google Drive, Mendeley, RefWorks, Evernote, Dropbox, Papers, GoodReader, Flickr and Picasa (Hennig 2014). Rutgers University created a Mobile Apps for Research and Study LibGuide that provides students, faculty, and staff with guidance on apps for use in reference, research, reading, note taking, writing, presenting, collaborating, and file storage. The library at McGill University also offers workshops on the use of tablets for research and downloading and organizing data. Initially, the workshops were offered to librarians and then expanded to students, faculty, and staff. The workshops were particularly helpful in educating participants about the challenges posed by wireless connectivity issues and barriers to accessing

content posed by DRM (Canuel, Crichton, and Savova 2012).

Other academic libraries have focused on facilitating students' access to library-specific resources from their tablets and mobile devices by offering instruction and resources to facilitate discovery and access to information. The Library at Texas A & M at Kingsville created a Library Mobile Apps LibGuide that provides users with information about library-specific apps, such as those created by database vendors WorldCat and EBSCO, LMS vendor BlackBoard, and a variety of citation managers. Similarly, Santa Clara University provides a Mobile Library LibGuide offering access to a suite of library-specific apps as well as links to app reviews from blogs, trade publications, and other new sources.

Discipline-Specific Mobile Tools

While many of the above examples focus on providing help to individuals, other academic libraries have focused on using tablets and apps to provide discipline-specific support. The Art and Architecture Library at Virginia Tech launched an iPad program to support students in the College of Architecture and Urban Studies. Dozens of apps were pre-installed on the devices, including discipline-specific resources such as digital sketching and computer-aided design apps (Tomlin 2012). In 2011, Woodbury University, located in San Diego, California, added five iPads to the School of Architecture following a successful grant proposal (Copper 2014). Two of the iPads were placed in the library: one in the stacks and one in a study carrel for in-library research. The three other tablets circulated to patrons. At the beginning of each academic year, the library hosts tablet workshops to highlight new apps of use to architecture students, particularly those that could be used as reference tools. For example, when attempting to find information about land structures, it might be more efficient to use a GIS map as opposed to a traditional reference source, such as an atlas.

At Philadelphia's Temple University, the Science and Engineering Library loans students a variety of technology tools including iPads. The iPads have been pre-configured to include a host of discipline-specific apps, including the mobile sites of the American Chemical Society and the Public Library of Science, a variety of GIS-related apps, and AutoCAD apps. Stanford University's Falconer Biology Library has four third generation iPads available for patrons to check out for up to two weeks. The iPads have a number of news and productivity apps pre-installed, as well as a collection of discipline-specific tools including 3D Brain, 3D Cell Simulation, iProtein, and Virtual Cell Animations.

These initiatives illustrate the possibilities for providing discipline-specific support using what previously might have been considered non-traditional research tools: "Librarians should use tablets and apps as seamlessly in the library as they would a reference book, the catalog, or a database" (Copper 2014, 122).

Tablets, Apps, and Professional Development

Whether librarians are seeking to develop active learning pedagogies to incorporate tablets into their teaching, offer workshops for students on using tablets to enhance their productivity and facilitate research, or support discipline-specific instruction through mobile devices, they need to stay abreast of the latest developments in tablet technology and app development.

Some institutions have established successful learning communities, ongoing workshop series, or user groups to facilitate continuing professional development. At San Diego State University, librarians started a tablet user group and, with the larger campus community, developed tablets into "high-quality knowledge tools" (Salem, Cronin, and Bliss 2012). That group encouraged professional development among all librarians, provided mentoring for those with little tablet computing experience, and afforded opportunities for brainstorming the integration of tablets and apps into reference, instruction, and other library services. The authors note that the tablet user community was particularly valuable in allowing participants to increase their skills and comfort in working with technology. They also recommend that in order to address the needs of the institution as a whole, cross-institutional participation is essential when implementing tablet programs in the academic library.

Potential Value

The literature mentioned above illustrates a shift toward using tablets to provide more personalized

and discipline-specific information and digital literacy instruction. Rather than simply using tablets to help students access and annotate information, students can utilize research, productivity, and discipline-specific apps to find, manipulate, and analyze information and, ultimately, create new knowledge. According to recent research, this is precisely the type of assistance students are seeking. A study conducted at the University of Central Florida found that 52% of the respondents who owned a mobile device said they used apps to complete assignments at least once a week. Additionally, students indicated they wanted to see more faculty use mobile apps and devices in their coursework (Chen and Denoyelles 2013). The 2014 Horizon Report, Library Edition noted that mobile apps have two particularly attractive features to academic and research libraries: they are inexpensive and plentiful, covering virtually all disciplines and areas of interest.

Potential Hurdles

There are a variety of practical considerations that might discourage some libraries from focusing on the use of tablets in instruction. Apple's iPad does not support Adobe Flash, does not have USB ports, and, as is the case with other tablets, has battery limitations.

Additionally, tablet computers might pose accessibility concerns. Morris et al. (2013) notes that while many mobile devices offer features that make them more easily usable for people with certain limitations, they might be less usable for others. At my institution, Stonehill College, librarians have reported that both staff and students expressed frustration at using the small touch screen on the HP tablets. Mice were purchased in an effort to address that concern, yet some still preferred using their personal computers or a library desktop computer. Others have also reported complaints with the ergonomics of the tablets. Christiansen (2015) found that students did not mind conducting searches in the library catalog, but were frustrated when required to enter both letters and numbers, such as when placing holds on items and viewing their account information.

Also, some continue to believe that tablets might divert students' attention. According to the ECAR Study of Undergraduate Students and Information Technology, many instructors (67%) agree that in-class use of mobile devices is distracting, with over half (55%) banning or discouraging their use.

Many argue that the biggest hurdles standing in the way of successfully incorporating tablets into library instruction are student, faculty, staff, and librarians' digital literacy deficits. Digital literacy, as defined by the American Library Association's Digital Literacy Task Force, is "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills." Programmatic digital literacy support is sometimes lacking when institutions attempt to launch tablet programs. Nguyen, Barton, and Nguyen's 2014 review of research on using iPads in higher education found that although learners may be demanding mobile learning, there is "a lack of innovative pedagogical guidelines on how best to use this device to improve academic processes and achievements" (197).

Conclusion

In their introduction to *Mobile Devices: Service with Intention*, Miller, Moorefield-Lang, and Meier (2015) identify five best practices for the intentional integration of tablets into library services:

1. Work with the big picture. Review institution- and library-level strategic plans as a means of deciding how to integrate tablet programs into big picture goals.
2. Understand the community's behaviors, characteristics, and needs.
3. Seek and build collaborations. These collaborations should include not only those from within the library community but also groups and departments such as IT.
4. Develop an assessment plan prior to the launch of a tablet program in order to be intentional about data collation.
5. Know when to stop.

By following these best practices, librarians can work to consistently and efficiently incorporate tablet computers into their regular teaching practice.

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